

WHAT IS CLAIMED IS:

1. A fuel-cell system having a fuel battery comprising more than one fuel cell that changes chemical energy of a fuel and oxidant to electric energy, comprising:

5           a first passage connecting the fuel battery to a purge gas supply source;  
          a second passage connecting the fuel battery to exterior of the fuel battery;  
          a first solenoid valve installed in the first passage;  
          a second solenoid valve installed in the second passage;  
          a current sensor producing an output indicative of current generated by the  
10       fuel battery; and

          an electronic control unit that opens the first and second solenoid valves to open the first and second passages to supply the purge gas to the fuel battery through the first passage such that residue in the fuel battery is purged to the exterior through the second passage by the purge gas, at a time interval determined from the output of  
15       the current sensor.

2. The fuel-cell system according to claim 1, wherein the time interval is determined to be shorter with increasing output of the current sensor.

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3. The fuel-cell system according to claim 1, further including:

          a hydrogen sensor installed in the second passage and producing an output indicating that hydrogen gas flows into the second passage;

25           and the electronic control unit terminates purging of the residue when it is detected that the hydrogen gas flows into the second passage from the output of the hydrogen sensor.

4. The fuel-cell system according to claim 1, further including:

a voltage sensor producing an output indicative of voltage generated by the fuel battery; and

the electronic control unit opens the first and second solenoid valves to open the first and second passages to purge the residue to the exterior when the voltage detected from the output of the voltage sensor falls below a threshold value.

5. The fuel-cell system according to claim 4, wherein the threshold value is determined from the current detected from the output of the current sensor.

6. The fuel-cell system according to claim 5, wherein the threshold value is determined to be shorter with increasing output of the current sensor.

7. The fuel-cell system according to claim 1, wherein the purge gas is nitrogen gas.

8. A fuel-cell system having a fuel battery comprising more than one fuel cell that changes chemical energy of a fuel and oxidant to electric energy, comprising:

a first passage connecting the fuel battery to a fuel gas supply source;

a second passage connecting the fuel battery to exterior of the fuel battery;

a first manual valve installed in the first passage to be manually opened; and

a second manual valve installed in the second passage to be manually opened, the first and second manual valves being arranged to be manually opened by an

operator to open the first and second passages to supply the fuel gas to the fuel battery through the first passage such that residue in the fuel battery is purged to the exterior through the second passage by the fuel gas.

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9. The fuel-cell system according to claim 8, further including:

a coupler coupling the first and second manual valves such that the first and second manual valves are opened or closed together.

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10. The fuel-cell system according to claim 8, further including:

a third passage connecting the fuel battery to the fuel gas supply source;

a first solenoid valve installed in the third passage; and

15 an electronic control unit that opens the first solenoid valve to open the third passage to supply the fuel gas from the fuel gas supply source;

and wherein the first passage bypasses the first solenoid valve.

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11. The fuel-cell system according to claim 10, further including:

a second solenoid valve installed in the second passage;

and the electronic control unit closes the second solenoid valve, when it opens the first solenoid valve to open the third passage to supply the fuel gas from the fuel gas supply source.

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12. The fuel-cell system according to claim 8, wherein the fuel gas is hydrogen gas.